

WHAT IS CLAIMED IS:

1. An information recording apparatus comprising:  
a light source which emits a recording light for  
5 information recording;

a recording pulse signal generating unit which generates  
a recording pulse signal corresponding to an inputted recording  
signal;

a high frequency signal generating unit which generates  
10 a digital high frequency signal based on the recording signal;

an adder which adds the recording pulse signal and the  
high frequency signal to generate a driving pulse signal; and

a driving unit which drives the light source based on  
the driving pulse signal to emit the recording light.

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2. The information recording apparatus according to  
claim 1, wherein the high frequency signal has a constant phase  
relation with the recording pulse signal at a rise-up portion  
and a fall-down portion of each pulse included in the recording  
20 pulse signal.

3. The information recording apparatus according to  
claim 2, wherein a frequency of the high frequency signal in  
each pulse period is determined to have the constant phase relation  
25 with the recording pulse signal at the rise-up portion and the  
fall-down portion of each pulse included in the recording pulse  
signal.

4. The information recording apparatus according to  
30 claim 2, wherein a phase of the high frequency signal coincides  
with a phase of the recording pulse signal at the rise-up portion  
and the fall-down portion of each pulse included in the recording  
pulse signal.

5        5. The information recording apparatus according to claim 2, wherein a phase of the high frequency signal is ahead of or behind a phase of the recording pulse signal by a constant angle at the rise-up portion and the fall-down portion of each pulse included in the recording pulse signal.

10       6. The information recording apparatus according to claim 1, wherein the high frequency signal generating unit determines amplitude of the high frequency signal to be optimum to a recording power level in each pulse period for each pulse period included in the recording pulse signal.

15       7. The information recording apparatus according to claim 1, wherein the high frequency signal has different amplitude in each pulse period included in the recording pulse signal.

20       8. The information recording apparatus according to claim 1, wherein the high frequency signal generating unit comprises:

      a high frequency signal table which stores high frequency signal data including a frequency and an amplitude predetermined corresponding to a recording mark length;

25        a unit which refers to the high frequency signal table, based on the recording mark length included in the inputted recording signal, to obtain the frequency and the amplitude of the high frequency signal corresponding to each recording mark; and

      a unit which generates the digital high frequency signal having the obtained frequency and amplitude.

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      9. The information recording apparatus according to claim 1, wherein the high frequency signal generating unit comprises:

      a high frequency signal table which stores high frequency

signal data including a frequency and an amplitude predetermined corresponding to the recording mark length and a space length preceding to the recording mark;

5 a unit which refers to the high frequency signal table, based on the recording mark length and the front space length included in the inputted recording signal to obtain the frequency and the amplitude of the high frequency signal corresponding to each recording mark; and

10 a unit which generates the digital high frequency signal having the obtained frequency and amplitude.

10. The information recording apparatus according to claim 1,

15 wherein the high frequency signal generating unit comprises a D/A converter which converts the digital high frequency signal to an analog high frequency signal, and

wherein the adder adds the recording pulse signal and the analog high frequency signal to generate an analog driving pulse signal.

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11. The information recording apparatus according to claim 1, wherein the recording pulse signal generating unit generates a digital recording pulse signal, and wherein the adder comprises:

25 a unit which generates a digital driving pulse signal by adding the digital recording pulse signal and the digital high frequency signal; and

a D/A converter which converts the digital driving pulse signal to an analog driving pulse signal.

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12. The information recording apparatus according to claim 1,

wherein the recording pulse signal generating unit

generates a digital recording pulse signal and comprises a D/A converter which converts the digital recording pulse signal to an analog recording pulse signal,

5 wherein the high frequency signal generating unit comprises a D/A converter which converts the digital high frequency signal to an analog high frequency signal, and

wherein the adder adds the analog recording pulse signal and the analog high frequency signal to generate an analog driving pulse signal.

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13. An information recording method comprising:

a recording pulse signal generating process which generates a recording pulse signal corresponding to an inputted recording signal;

15 a high frequency signal generating process which generates a digital high frequency signal based on the recording signal;

an adding process which generates a driving pulse signal by adding the recording pulse signal and the high frequency signal;

20 and

a driving process which drives a light source based on the driving pulse signal to emit a recording light for information recording.